Analysis of the relation between workload and the production indicators of a manufacturing company: NASA-TLX and SWAT simplified
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Scope: According to the latest Occupational Accident Statistics of Brazil, in 2012 there were more than 700,000 registered occupational accidents. Of these, more than 240,000 were in the manufacturing companies. According to Oliveira et al. (2010), workload can be one of the causes of occupational accidents, absenteeism rates, low income and stress injuries.

Project organization: This paper aims to analyze the relation between the worker workload and the production indicators in a manufacturing company in the energy sector. It was used for this study models and ergonomic techniques.

Human Factors topics covered: First, for the conduct of the field research it was used the Ergonomics Work Analysis (EWA), a model prescribed by the Regulatory Standard of Ergonomics in Brazil (NR-17) and widely used by researchers. For the measurement of workload it was used the techniques NASA-TLX and SWAT Simplified. For mapping painful regions it was used the Cortlett diagram. Initially, there was a literature review covering the ergonomics area, focusing on cognitive ergonomics. Subsequently, we performed a review of the literature cited model, and the techniques. The case study was conducted in the Southeast of Brazil. The company has workers with the average age of 25 years, and half of the workers were recently hired, with less than four months in the company. The company has a variable demand and there was a recent change of the production site.

Project phases: The EWA method was used to understand the working activities in the different sectors, as well as the constraints existing in them. First, there was the demand analysis, the survey of general information, the analysis of the task and observations of the global activities. In the second phase were carried out systematic observations and the above techniques have been applied to all workers. After this step it was carried out a questionnaire for the assessment of the techniques. In the last stage held the processing, validation and final recommendations. From the observations, the verbalizations of workers and the results of the techniques it was possible to know the level of workload of each activity, which part of the body has more complaints of pain and discomfort, which workers’ workload dimensions are most affected. Furthermore, it was possible to compare the level of workers’ workload on Monday and Friday and which technique was considered the best among the interviewees, for simplicity, relation to reality and representation of actual work.

Conclusion: The sector that stands out in the statements of managers is the quality sector, which performs a tightness test. This test should be performed on all products and requires visual attention of the worker, as he should see small air bubbles that eventually can leave the product. The work of the welder also requires caution, because the quality test performed after this process could show faults in the welding, what can bring discomfort to the worker. One aspect of this study that draws attention is the variable demand which was characterized as a negative point by the workers, as all cited a lack of production as a discouraging aspect of the work. In addition, all workers commented that Friday is a good day’s work, in contradiction to the manager’s words, who said that this day is the most complicated due to urgent work orders that come last minute. With this work, the relation between workload and production indicators was verified. Furthermore, it was possible to evaluate the measurement techniques of fatigue and provide recommendations so that you can improve the company’s productivity by making the least stressful job for workers.